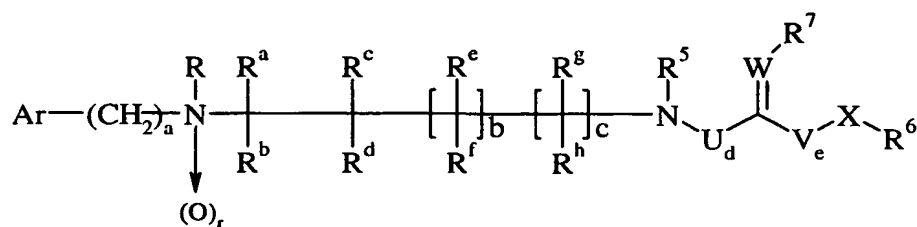


**WHAT IS CLAIMED IS:**

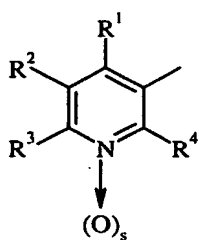
1. A compound of formula I



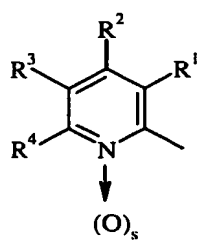
**I**

wherein

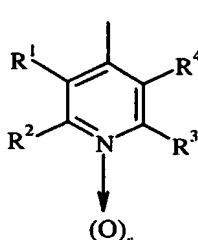
-Ar is selected from



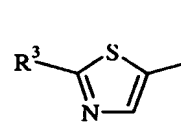
pyrid-3-yl,



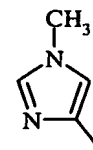
pyrid-2-yl,



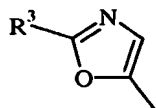
pyrid-4-yl,



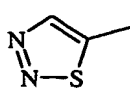
1,3-thiazol-5-yl,



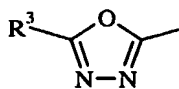
1-methylimidazol-4-yl,



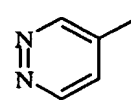
1,3-oxazol-5-yl,



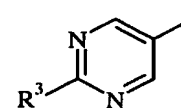
1,2,3-thiadiazol-5-yl,



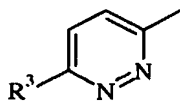
1,3,4-oxadiazol-2-yl,



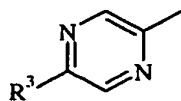
pyridazin-4-yl,



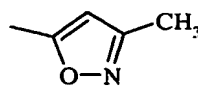
pyrimidin-5-yl,



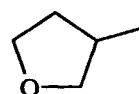
pyridazin-3-yl,



pyrazin-5-yl,



3-methylisoxazol-5-yl and



oxolan-3-yl

where

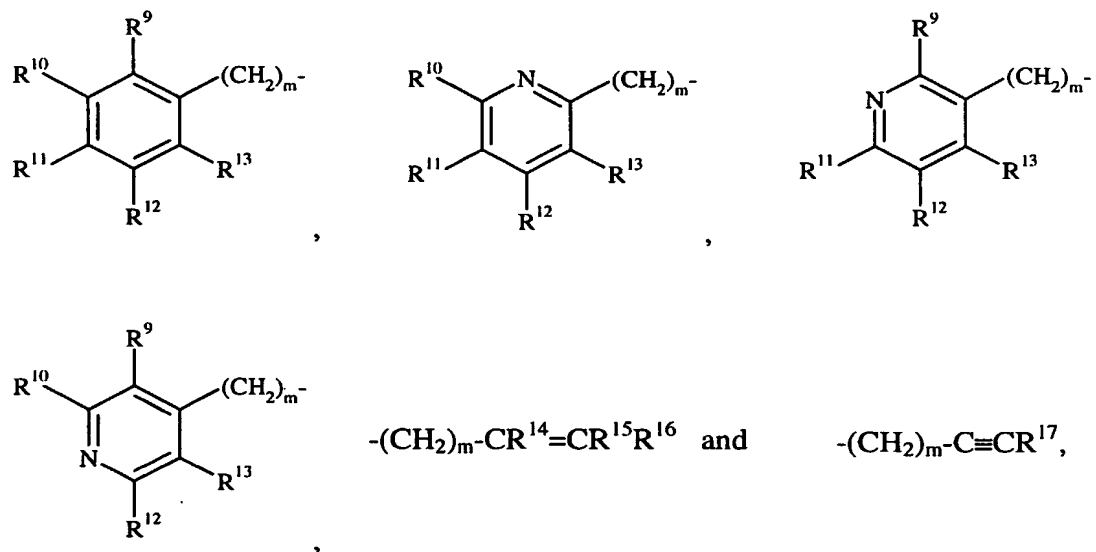
$R^1$ ,  $R^2$ ,  $R^3$ , and  $R^4$  are independently selected from hydrogen, halogen, alkyl, alkoxy, haloalkyl, and haloalkoxy;

and,

s is an integer selected from 0 or 1;

-a and r are integers independently selected from 0 or 1;

-R is selected from hydroxy, haloalkyl, alkoxyalkyl, alkoxyalkoxyalkyl, cycloalkylalkyl, cyanoalkyl, formyl, alkylcarbonyl, alkoxyalkyl, alkylsulfonyl, dialkylphosphonato, oxolan-3-ylmethyl, 2H-3,4,5,6-tetrahydropyran-2-ylmethyl, cyclohex-1-en-3-yl, thien-3-ylmethyl, furan-2-ylmethyl, furan-3-ylmethyl, benzo[b]furan-2-ylmethyl, 2- $R^8$ -1,3-thiazol-4-ylmethyl, 5- $R^8$ -1,2,4-oxadiazol-3-ylmethyl,



where

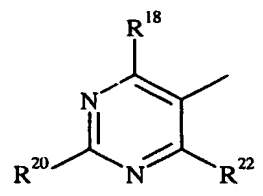
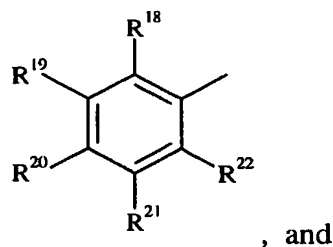
$R^8$  is selected from halogen, alkyl, aryl, and heteroaryl, wherein aryl and heteroaryl are optionally substituted with at least one of halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

m is an integer selected from 1 or 2;

and,

$R^9$ ,  $R^{10}$ ,  $R^{11}$ ,  $R^{12}$ , and  $R^{13}$  are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, haloalkoxy, alkoxyiminoalkyl, cyano, nitro, 2-alkyl-2H-tetrazol-5-yl, aryl, and aryloxy;

$R^{14}$ ,  $R^{15}$  and  $R^{16}$  are independently selected from hydrogen, halogen, alkyl and aryl;  
 $R^{17}$  is selected from hydrogen, alkyl,



where

$R^{18}$ ,  $R^{19}$ ,  $R^{20}$ ,  $R^{21}$ , and  $R^{22}$  are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

$-R^a$ ,  $R^b$ ,  $R^c$  and  $R^d$  are independently selected from hydrogen and alkyl;

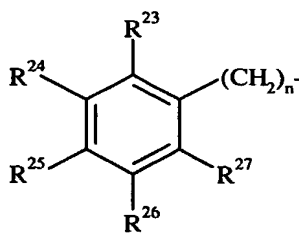
$-b$  and  $c$  are integers independently selected from 0 or 1;

and

when  $b$  and  $c$  are 1,

$-R^e$ ,  $R^f$ ,  $R^g$  and  $R^h$  are independently selected from hydrogen and alkyl;

$-R^5$  is selected from hydrogen, alkyl, and



where

$n$  is an integer selected from 1 or 2; and,

$R^{23}$ ,  $R^{24}$ ,  $R^{25}$ ,  $R^{26}$ , and  $R^{27}$  are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

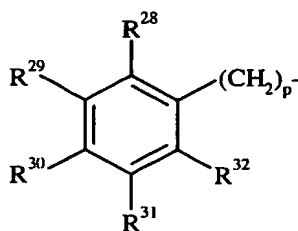
$-d$  and  $e$  are integers independently selected from 0 and 1;

and,

when  $d$  and  $e$  are 1;

$-U$  and  $V$  are  $-CH_2-$ ;

$-R^6$  is selected from hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, alkoxy, alkoxyalkyl, alkoxyalkoxyalkyl, alkenyl, haloalkenyl, and



where

p is an integer selected from 1 and 2;

and,

$R^{28}$ ,  $R^{29}$ ,  $R^{30}$ ,  $R^{31}$  and  $R^{32}$  are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

$-R^7$  is selected from  $-C\equiv N$  and  $-NO_2$ ;

$-W$  is selected from  $-CR^{33}-$  and  $-N-$ ;

$-X$  is elected from  $-CR^{34}R^{35}-$ ,  $-O-$ ,  $-S-$ , and  $-NR^{36}$ ;

where

$R^{33}$ ,  $R^{34}$ ,  $R^{35}$  and  $R^{36}$  are independently selected from hydrogen and alkyl;

provided that when

i) Ar is oxolan-3-yl (M); ii) a, b and c are 1, and  $R^a$  through  $R^g$ , inclusively, are hydrogen; iii) d, e and r are 0; iv) R is  $-(CH_2)_mCR^{14}=CR^{15}R^{16}$  or  $-(CH_2)_mC\equiv CR^{17}$ ; v)  $R^5$  is hydrogen or alkyl; vi)  $R^6$  is hydrogen, alkyl, alkenyl or haloalkenyl and vii) W is  $-CR^{33}-$  where  $R^{33}$  is hydrogen; viii) then X is other than  $-S-$ ;

when d and e are 0,

$-R^5$  and X may be taken together with  $-CH_2(CH_2)_q-$  or  $-CH_2YCH_2-$  to form a ring,

where

q is an integer selected from 1 or 2;

Y is selected from O, S and  $NR^{37}$ , where  $R^{37}$  is hydrogen or alkyl;

$-X$  is elected from  $-CH-$ ,  $-O-$ ,  $-S-$ , and  $-N-$ ;

where

when X is  $-CH-$  or  $-N-$ ,

$R^6$  is selected from hydrogen, alkyl and that set forth above for R;

when b and c are 0,

$-R$  and  $R^5$  may be taken together with  $-CH_2CH_2-$  to form a piperazine ring;

and

agriculturally acceptable salts thereof.

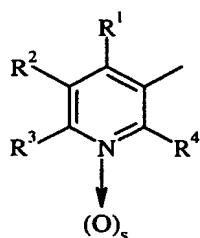
2. A compound of claim 1, wherein a is 1; b, c, d and e are each 0;  $R^a$ ,  $R^b$ ,  $R^c$  and  $R^d$  are each hydrogen;  $R^5$  is selected from hydrogen and alkyl; W is selected from  $-CR^{33}-$  and  $-N-$ , where  $R^{33}$  is hydrogen; X is selected from  $-O-$ ,  $-S-$ , and  $-NR^{36}-$ ;

and

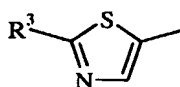
$R^5$  and X may be taken together with  $-\text{CH}_2(\text{CH}_2)_q-$  or  $-\text{CH}_2\text{YCH}_2-$  to form a ring, where

Y is selected from  $-O-$  and  $-NR^{37}-$ , where  $R^{37}$  is hydrogen or alkyl; X is  $-N-$  and  $R^6$  is selected from hydrogen and alkyl.

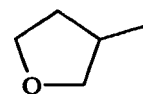
3. A compound of claim 2, wherein Ar is selected from



**A**  
pyrid-3-yl,



**B**  
1,3-thiazol-5-yl and

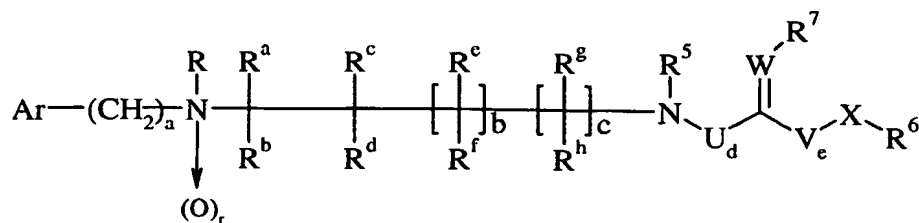


**M**  
oxolan-3-yl

where

s is 0;  $R^1$ ,  $R^2$  and  $R^4$  are each hydrogen and  $R^3$  is halogen.

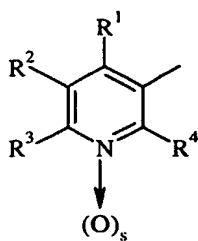
4. A compound of formula I



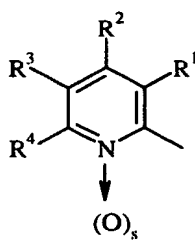
**I**

wherein

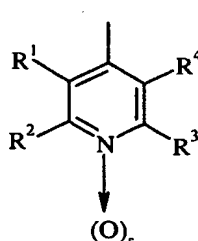
-Ar is selected from



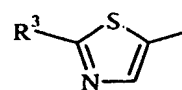
**A**  
pyrid-3-yl,



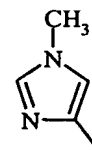
**A1**  
pyrid-2-yl,



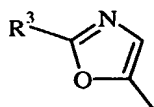
**A2**  
pyrid-4-yl,



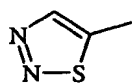
**B**  
1,3-thiazol-5-yl,



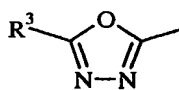
**C**  
1-methyl-imidazol-4-yl,



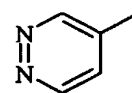
**D**  
1,3-oxazol-5-yl,



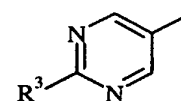
**E**  
1,2,3-thiadiazol-5-yl,



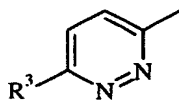
**F**  
1,3,4-oxadiazol-2-yl,



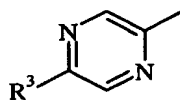
**G**  
pyridazin-4-yl,



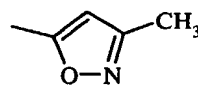
**H**  
pyrimidin-5-yl,



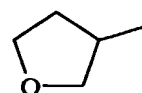
**J**  
pyridazin-3-yl,



**K**  
pyrazin-5-yl,



**L**  
3-methyl-isoxazol-5-yl  
and



**M**  
oxolan-3-yl

where

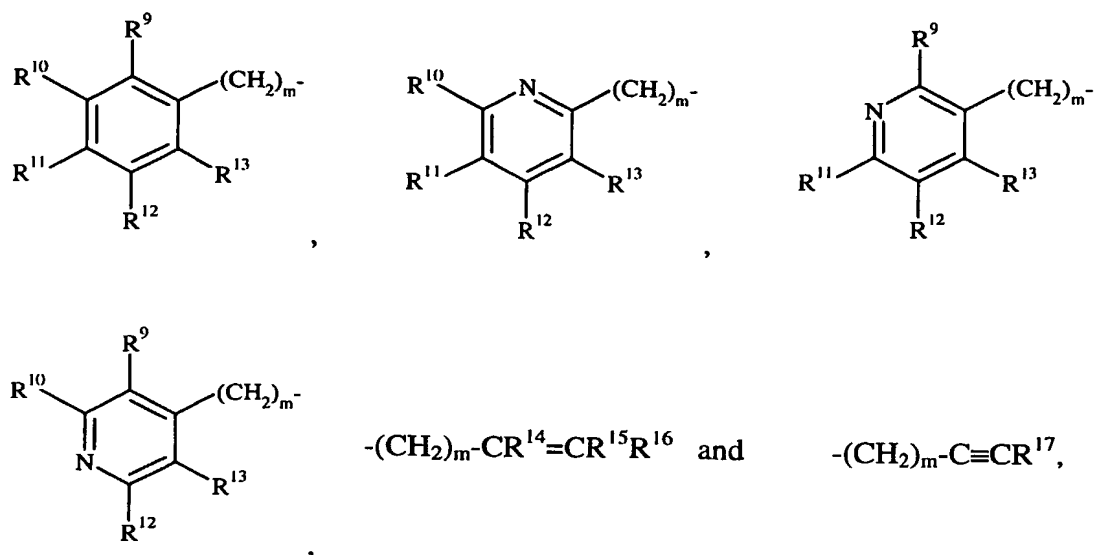
$R^1$ ,  $R^2$ ,  $R^3$ , and  $R^4$  are independently selected from hydrogen, halogen, alkyl, alkoxy, haloalkyl, and haloalkoxy;

and,

s is an integer selected from 0 or 1;

-a and r are integers independently selected from 0 or 1;

-R is selected from hydroxy, haloalkyl, alkoxyalkyl, alkoxyalkoxyalkyl, cycloalkylalkyl, cyanoalkyl, formyl, alkylcarbonyl, alkoxycarbonyl, alkylsulfonyl, dialkylphosphonato, oxolan-3-ylmethyl, 2H-3,4,5,6-tetrahydropyran-2-ylmethyl, cyclohex-1-en-3-yl, thien-3-ylmethyl, furan-2-ylmethyl, furan-3-ylmethyl, benzo[b]furan-2-ylmethyl, 2- $R^8$ -1,3-thiazol-4-ylmethyl, 5- $R^8$ -1,2,4-oxadiazol-3-ylmethyl,



where

$\text{R}^8$  is selected from halogen, alkyl, aryl, and heteroaryl, wherein aryl and heteroaryl are optionally substituted with at least one of halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

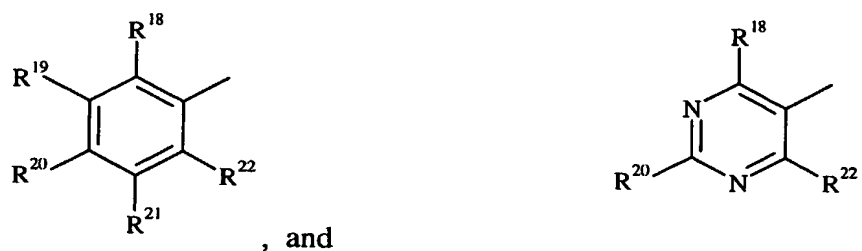
$m$  is an integer selected from 1 or 2;

and,

$\text{R}^9, \text{R}^{10}, \text{R}^{11}, \text{R}^{12}$ , and  $\text{R}^{13}$  are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, haloalkoxy, alkoxyiminoalkyl, cyano, nitro, 2-alkyl-2H-tetrazol-5-yl, aryl, and aryloxy;

$\text{R}^{14}, \text{R}^{15}$  and  $\text{R}^{16}$  are independently selected from hydrogen, halogen, alkyl and aryl;

$\text{R}^{17}$  is selected from hydrogen, alkyl,



where

$\text{R}^{18}, \text{R}^{19}, \text{R}^{20}, \text{R}^{21}$ , and  $\text{R}^{22}$  are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

$-\text{R}^a, \text{R}^b, \text{R}^c$  and  $\text{R}^d$  are independently selected from hydrogen and alkyl;

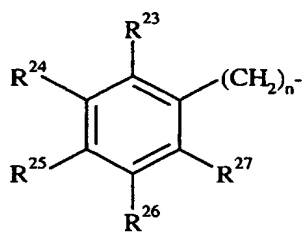
-b and c are integers independently selected from 0 or 1;

and

when b and c are 1,

-R<sup>e</sup>, R<sup>f</sup>, R<sup>g</sup> and R<sup>h</sup> are independently selected from hydrogen and alkyl;

-R<sup>5</sup> is selected from hydrogen, alkyl, and



where

n is an integer selected from 1 or 2; and,

R<sup>23</sup>, R<sup>24</sup>, R<sup>25</sup>, R<sup>26</sup>, and R<sup>27</sup> are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

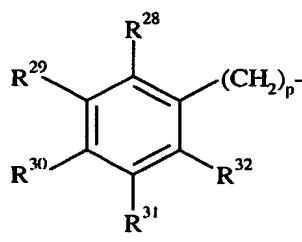
-d and e are integers independently selected from 0 and 1;

and,

when d and e are 1;

-U and V are -CH<sub>2</sub>-;

-R<sup>6</sup> is selected from hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, alkoxy, alkoxyalkyl, alkoxyalkoxyalkyl, alkenyl, haloalkenyl, and



where

p is an integer selected from 1 and 2;

and,

R<sup>28</sup>, R<sup>29</sup>, R<sup>30</sup>, R<sup>31</sup> and R<sup>32</sup> are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

-R<sup>7</sup> is selected from -C≡N and -NO<sub>2</sub>;



-W is selected from  $-\text{CR}^{33}-$  and  $-\text{N}-$ ;

-X is selected from  $-\text{CR}^{34}\text{R}^{35}-$ ,  $-\text{O}-$ ,  $-\text{S}-$ , and  $-\text{NR}^{36}-$ ;

where

$\text{R}^{33}$ ,  $\text{R}^{34}$ ,  $\text{R}^{35}$  and  $\text{R}^{36}$  are independently selected from hydrogen and alkyl;

provided that when

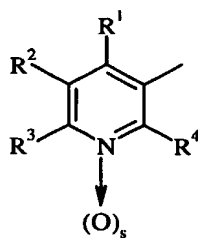
i) Ar is oxolan-3-yl (M); ii) a, b and c are 1, and  $\text{R}^a$  through  $\text{R}^g$ , inclusively, are hydrogen; iii) d, e and r are 0; iv) R is  $-(\text{CH}_2)_m\text{CR}^{14}=\text{CR}^{15}\text{R}^{16}$  or  $-(\text{CH}_2)_m\text{C}\equiv\text{CR}^{17}$ ; v)  $\text{R}^5$  is hydrogen or alkyl; vi)  $\text{R}^6$  is hydrogen, alkyl, alkenyl or haloalkenyl and vii) W is  $-\text{CR}^{33}-$  where  $\text{R}^{33}$  is hydrogen; viii) then X is other than  $-\text{S}-$ ;

and

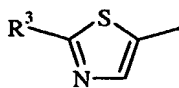
agriculturally acceptable salts thereof.

5. A compound of claim 4, wherein a is 1; b, c, d and e are each 0;  $\text{R}^a$ ,  $\text{R}^b$ ,  $\text{R}^c$  and  $\text{R}^d$  are each hydrogen;  $\text{R}^5$  is selected from hydrogen and alkyl; W is selected from  $-\text{CR}^{33}-$  and  $-\text{N}-$ , where  $\text{R}^{33}$  is hydrogen and X is selected from  $-\text{O}-$ ,  $-\text{S}-$ , and  $-\text{NR}^{36}-$ .

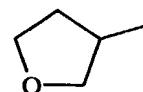
6. A compound of claim 5, wherein Ar is selected from



**A**  
pyrid-3-yl,



**B**  
1,3-thiazol-5-yl and

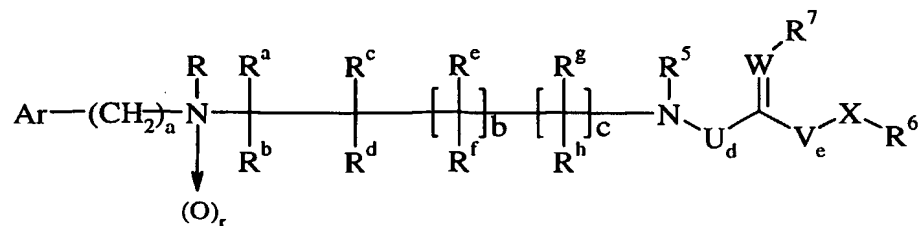


**M**  
oxolan-3-yl

where

s is 0;  $\text{R}^1$ ,  $\text{R}^2$  and  $\text{R}^4$  are each hydrogen and  $\text{R}^3$  is halogen.

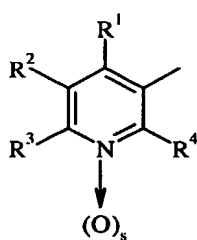
7. A compound of formula I



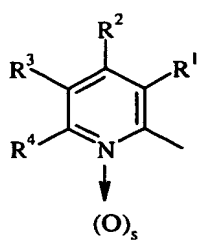
I

wherein

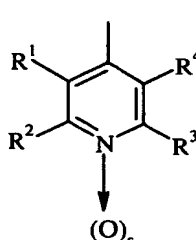
-Ar is selected from



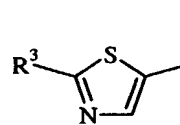
**A**  
pyrid-3-yl,



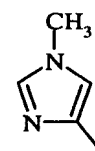
**A1**  
pyrid-2-yl,



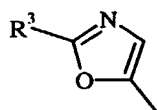
**A2**  
pyrid-4-yl,



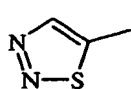
**B**  
1,3-thiazol-5-yl,



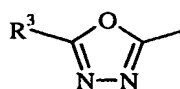
**C**  
1-methyl-imidazol-4-yl,



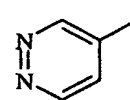
**D**  
1,3-oxazol-5-yl,



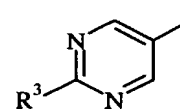
**E**  
1,2,3-thia-diazol-5-yl,



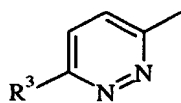
**F**  
1,3,4-oxa-diazol-2-yl,



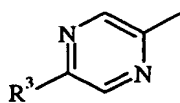
**G**  
pyridazin-4-yl,



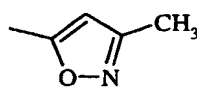
**H**  
pyrimidin-5-yl,



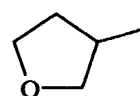
**J**  
pyridazin-3-yl,



**K**  
pyrazin-5-yl,



**L**  
3-methyl-isoxazol-5-yl  
and



**M**  
oxolan-3-yl

where

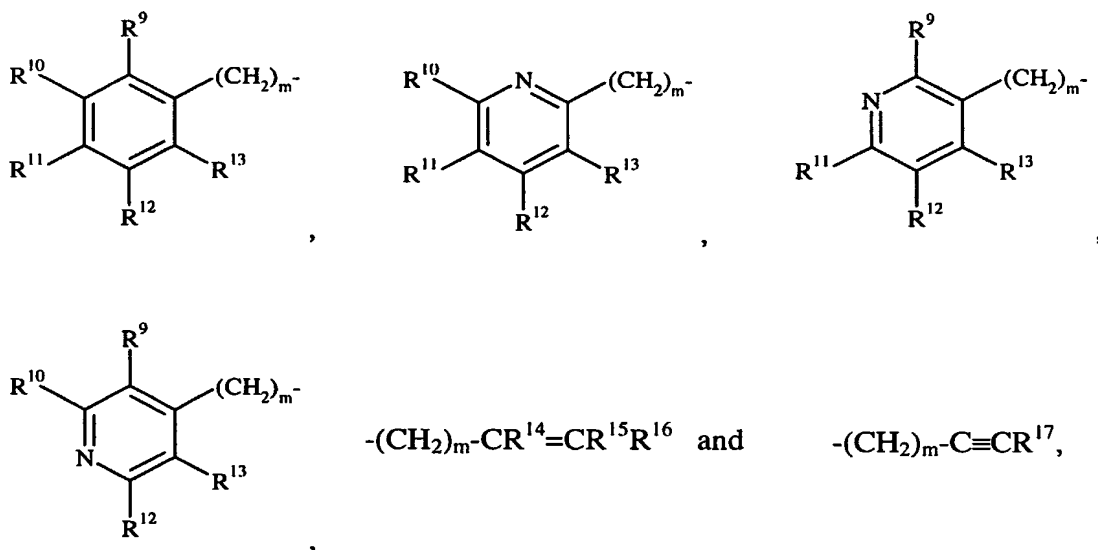
$\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , and  $\text{R}^4$  are independently selected from hydrogen, halogen, alkyl, alkoxy, haloalkyl, and haloalkoxy;

and,

s is an integer selected from 0 or 1;

-a and r are integers independently selected from 0 or 1;

-R is selected from hydrogen, hydroxy, alkyl, haloalkyl, alkoxyalkyl, alkoxyalkoxyalkyl, cycloalkylalkyl, cyanoalkyl, formyl, alkylcarbonyl, alkoxy carbonyl, alkylsulfonyl, dialkylphosphonato, oxolan-3-ylmethyl, 2H-3,4,5,6-tetrahydropyran-2-ylmethyl, cyclohex-1-en-3-yl, thien-3-ylmethyl, furan-2-ylmethyl, furan-3-ylmethyl, benzo[b]furan-2-ylmethyl, 2-R<sup>8</sup>-1,3-thiazol-4-ylmethyl, 5-R<sup>8</sup>-1,2,4-oxadiazol-3-ylmethyl,



where

R<sup>8</sup> is selected from halogen, alkyl, aryl, and heteroaryl, wherein aryl and heteroaryl are optionally substituted with at least one of halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

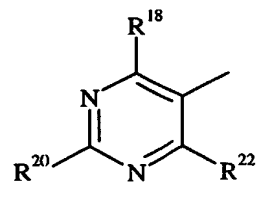
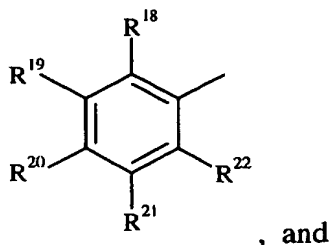
m is an integer selected from 1 or 2;

and,

R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup>, R<sup>12</sup>, and R<sup>13</sup> are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, haloalkoxy, alkoxyiminoalkyl, cyano, nitro, 2-alkyl-2H-tetrazol-5-yl, aryl, and aryloxy;

R<sup>14</sup>, R<sup>15</sup> and R<sup>16</sup> are independently selected from hydrogen, halogen, alkyl and aryl;

R<sup>17</sup> is selected from hydrogen, alkyl,



where

$R^{18}$ ,  $R^{19}$ ,  $R^{20}$ ,  $R^{21}$ , and  $R^{22}$  are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

$-R^a$ ,  $R^b$ ,  $R^c$  and  $R^d$  are independently selected from hydrogen and alkyl;

$-b$  and  $c$  are integers independently selected from 0 or 1;

and

when  $b$  and  $c$  are 1,

$-R^e$ ,  $R^f$ ,  $R^g$  and  $R^h$  are independently selected from hydrogen and alkyl;

$-d$  and  $e$  are 0;

$-R^5$  and  $X$  are taken together with  $-\text{CH}_2(\text{CH}_2)_q-$  or  $-\text{CH}_2\text{YCH}_2-$  to form a ring,

where

$q$  is an integer selected from 1 or 2;

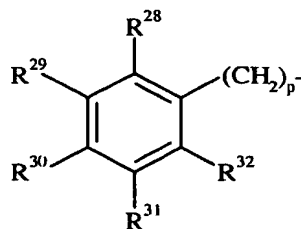
$Y$  is selected from  $-\text{O}-$ ,  $-\text{S}-$  and  $-\text{NR}^{37}-$ , where  $R^{37}$  is hydrogen or alkyl;

$-X$  is selected from  $-\text{CH}-$ ,  $-\text{O}-$ ,  $-\text{S}-$ , and  $-\text{N}-$ ;

where

when  $X$  is  $-\text{CH}-$  or  $-\text{N}-$ ,

$-R^6$  is selected from hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, alkoxy, alkoxyalkyl, alkoxyalkoxyalkyl, alkenyl, haloalkenyl, and



where

$p$  is an integer selected from 1 and 2;

and,

$R^{28}$ ,  $R^{29}$ ,  $R^{30}$ ,  $R^{31}$  and  $R^{32}$  are independently selected from hydrogen, halogen, alkyl, haloalkyl, alkoxy, and haloalkoxy;

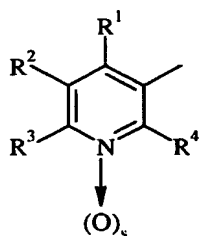
$-R^7$  is selected from  $-C\equiv N$  and  $-NO_2$ ;

$-W$  is selected from  $-CR^{33}-$  and  $-N-$ , where  $R^{33}$  is selected from hydrogen and alkyl; and

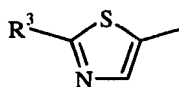
agriculturally acceptable salts thereof.

8. A compound of claim 7, wherein a is 1; b, c, d and e are each 0;  $R^a$ ,  $R^b$ ,  $R^c$  and  $R^d$  are each hydrogen; W is selected from  $-CR^{33}-$  and  $-N-$ , where  $R^{33}$  is hydrogen; Y is selected from  $-O-$  and  $NR^{37}$ ; X is  $-N-$  and  $R^6$  is selected from hydrogen and alkyl.

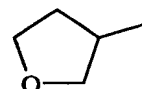
9. A compound of claim 5, wherein Ar is selected from



**A**  
pyrid-3-yl,



**B**  
1,3-thiazol-5-yl and



**M**  
oxolan-3-yl

where

s is 0;  $R^1$ ,  $R^2$  and  $R^4$  are each hydrogen and  $R^3$  is halogen.

10. A composition comprising an insecticidally effective amount of a compound of claim 1 and at least one agriculturally acceptable extender or adjuvant.

11. The insecticidal composition of claim 10, further comprising one or more second compounds selected from the group consisting of pesticides, plant growth regulators, fertilizers and soil conditioners.

12. A method of controlling insects, comprising applying an insecticidally effective amount of a composition of claim 10 to a locus where insects are present or are expected to be present.

13. A method of controlling insects, comprising applying an insecticidally effective amount of a composition of claim 11 to a locus where insects are present or are expected to be present.